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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/608,184	06/30/2003	Hyoung-il Kim	1293.1726	8789

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EXAMINER

HIRUY, ELIAS

ART UNIT	PAPER NUMBER
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2837

DATE MAILED: 03/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/608,184

Applicant(s)

KIM, HYOUNG-IL

Examiner

Elias B. Hiruy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d).

Information Disclosure Statement

2. An initialed and dated copy of Applicant's IDS form 1449 is attached to the instant Office action.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 3, 6, 8, 12, and 14-15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make, and/or use the invention.

The applicant recites how "the predetermined control factors include maximum overshoot, response delay, velocity ripple, settling time, or acceleration information." However, the specification other than reciting how that one an ordinary skilled in the art does not know the use of the above factors and that the intent of this application is to utilize the above factors, the applicant doesn't teach how this intent is implemented nor suggests a workable method. The disclosure does not provide enough information on

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how one skilled in the art achieves this goal with or without a reasonable research.

Thus, the specification does not provide an enabling method as claimed.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are:

The applicant reference to "wherein less than all of the controller is selected..." does not identify based on what steps the "less than all of the controllers" is determined. Based on the specification and interpretation of the examiner, the step how this controller is determined is based on the performance index.

In this office action, the phrase, "less than all of the controllers is selected..." is presumed to mean, "the controllers with the least performance index value is selected..." as best understood by the examiner.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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5. Claims 1, 4 and 11 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Sannomiya Akio JP 62-077889.

Regarding claim 1 and 4, Sannomiya Akio teaches about a method of controlling a motor (DC motor 10) driving system. The methods involve calculating N (where $N=1$) control algorithms, from initial value memorized in memory storage 16, corresponding to N external environment (i.e. motor driving conditions)(Abstract lines 6-9). Driving the motor under N motor driving environments by using one of the calculated algorithms calculating a constant speed mode data (i.e. performance indexes) by using speed deviation (i.e. predetermined control factors) which are detected when driving the motor using the algorithm under the N motor driving environments (Abstract lines 9-19). In addition, storing the calculated N control algorithms and the performance indexes corresponding to each of the N motor driving conditions in memory storage 17 (Abstract lines 13-21).

Regarding claim 11, Sannomiya Akio disclosure has a control part 13 that obtains functions of control parameters considering N driving environments and calculates control algorithms according to the functions (Abstract lines 6-8). Further, it has memory 17 to store the functions of the control parameters and corresponding control algorithms (Abstract lines 19-21).

6. Claims 13 and 16 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Takahashi Seiji JP 09-047057.

Regarding claim 13 and 16, Takahashi Seiji discloses a system that comprises a plurality of driving environments and a plurality of controllers pre-designed based on the

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driving environments (Abstract lines 6-10), wherein at least one controller of the plurality of controllers is selected to control a specific driving environment (Abstract lines 10-19).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 2 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sannomiya Akio JP 62-077889 as applied to claims 1 and 4 above, and further in view of Takahashi Seiji JP 09-047057.

Sannomiya Akio teaches about a system and an apparatus that meets all the limitation of claim 1 and 4.

Regarding claims 2 and 5, Sannomiya fails to show how predetermined weights are assigned to each of the predetermined control factors and how the performance

indexes are calculated by combining the predetermined control factors to which the weights are assigned.

However, Takahashi Seiji shows a PID control system (Abstract line 5) that inherently assigns predetermined weights (K_p = Proportional gain, K_I = Integral gain, K_d = Derivative gain) to each of the predetermined control factors and calculates performance index by combining the predetermined control factors to which the weights are assigned.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Sannomiya Akio method to incorporate the method of PID control that assigns a predetermined weights to each of the predetermined control factors; further, calculating the performance index by combining the predetermined control factors to which the weights are assigned as taught by Takahashi Seiji. The motivation being that the method (PID control) provides quick acting corrective control that is most desirable in motor control.

8. Claims 7 and 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sannomiya Akio JP 62-077889 in view of Takahashi Seiji JP 09-047057.

Regarding claim 7, Sannomiya Akio teaches about a method of controlling a motor (DC motor 10) driving system. The methods involve calculating N (where $N=1$) control algorithms, from initial value memorized in memory storage 16, corresponding to N external environment (i.e. motor driving conditions)(Abstract lines 6-9). Driving the motor under N motor driving environments by using one of the calculated algorithms calculating a constant speed mode constant data (i.e. performance indexes) by using

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speed deviation (i.e. predetermined control factors) which are detected when driving the motor using the algorithm under the N motor driving environments (Abstract lines 9-19). In addition, storing the calculated N control algorithms and the performance indexes corresponding to each of the N motor driving conditions in memory storage 17 (Abstract lines 13-21).

Sannomiya Akio, however, fails to show how a real performance index is compared to stored performance indexes and driving the motor based on the compared result.

Nevertheless, Takahashi Seiji shows a control system where the real performance index is compared to stored performance index and the motor is driven based on this result (Abstract lines 16-19).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Sannomiya Akio method to incorporate a control system where the real performance index is compared to a stored performance index and the motor is driven based on this result as taught by Takahashi Seiji. The motivation being that the method provides a robust way of controlling the motor system without departing from the desired ideal control method stored in memory.

Regarding claims 9 and 10, Sannomiya Akio fails to show how predetermined weights are assigned to each of the predetermined control factors and how the performance indexes are calculated by combining the predetermined control factors to which the weights are assigned.

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However, Takahashi Seiji shows a PID control system (Abstract line 5) that inherently assigns predetermined weights (K_p = Proportional gain, K_I = Integral gain, K_d = Derivative gain) to each of the predetermined control factors and calculates performance index by combining the predetermined control factors to which the weights are assigned.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Sannomiya Akio method to incorporate the methods of assigning a predetermined weights to each of the predetermined control factors and calculating the performance index by combining the predetermined control factors to which the weights are assigned as taught by Takahashi Seiji. The motivation being that the method (PID control) provides quick acting corrective control that is most desirable in motor control.

Remarks

9. No claim is allowed.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Refer to attached PTO-892 form.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elias B. Hiruy whose telephone number is 571-272-6105. The examiner can normally be reached on 7AM- 4:30PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Martin can be reached on (571) 272-2107. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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03/20/2005